

WHAT IS CLAIMED IS:

1. A functional fluid comprising:

a) a base stock or base oil, said base stock or base oil having the properties of:

- (i) a viscosity index (VI) of about 130 or greater;
- (ii) a pour point of about -10C or lower;
- (iii) a ratio of measured-to-theoretical low-temperature viscosity equal to about 1.2 or less, at a temperature of about -30C or lower, where the measured viscosity is cold-crank simulator viscosity and where theoretical viscosity is calculated at the same temperature using the Walther-MacCoull equation wherein said base stock or base oil is not a Group IV base stock or base oil; and

b) at least one additive.

15 2. A functional fluid comprising:

a) at least one base stock or base oil wherein said base stock or base oil has a VI of at least 130 produced by a process which comprises:

- (i) hydrotreating a feedstock having a wax content of at least about 60 wt.%, based on feedstock, with a hydrotreating catalyst under effective hydrotreating conditions such that less than 5 wt.% of the feedstock is converted to 650F (343C) minus products to produce a hydrotreated feedstock whose VI increase is less than 4 greater than the VI of the feedstock;
- (ii) stripping the hydrotreated feedstock to separate gaseous from liquid product;
- (iii) hydrodewaxing the liquid product with a dewaxing catalyst which is at least one of ZSM-48, ZSM-57, ZSM-23, ZSM-22,

ZSM-35, ferrierite, ECR-42, ITQ-13, MCM-71, MCM-68, beta, fluorided alumina, silica-alumina or fluorided silica alumina under catalytically effective hydrodewaxing conditions wherein the dewaxing catalyst contains at least one Group 9 or Group 10 noble metal; and

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b) at least one additive.

3. A functional fluid comprising:

a) at least one base stock or base oil wherein said base stock has a VI of
10 at least 130 produced by a process which comprises:

(i) hydrotreating a lubricating oil feedstock having a wax content of at least about 50 wt.%, based on feedstock, with a hydrotreating catalyst under effective hydrotreating conditions such that less than 5 wt.% of the feedstock is converted to 650F (343C) minus products to produce a hydrotreated feedstock to produce a hydrotreated feedstock whose VI increase is less than 4 greater than the VI of the feedstock;

(ii) stripping the hydrotreated feedstock to separate gaseous from liquid product;

(iii) hydrodewaxing the liquid product with a dewaxing catalyst which is at least one of ZSM-22, ZSM-23, ZSM-35, ferrierite, ZSM-48, ZSM-57, ECR-42, ITQ-13, MCM-68, MCM-71, beta, fluorided alumina, silica-alumina or fluorided silica-alumina under catalytically effective hydrodewaxing conditions wherein the dewaxing catalyst contains at least one Group 9 or 10 noble metal;

(iv) hydrofinishing the product from step (3) with a mesoporous hydrofinishing catalyst from the M41S family under hydrofinishing conditions; and

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- b) at least one additive.
4. A functional fluid comprising:
 - a) at least one base stock wherein said base stock has a VI of at least 130 produced by a process which comprises:
 - (i) hydrotreating a lubricating oil feedstock having a wax content of at least about 60 wt.%, based on feedstock, with a hydrotreating catalyst under effective hydrotreating conditions such that less than 5 wt.% of the feedstock is converted to 650F (343C) minus products to produce a hydrotreated feedstock to produce a hydrotreated feedstock whose VI increase is less than 4 greater than the VI of the feedstock;
 - (ii) stripping the hydrotreated feedstock to separate gaseous from liquid product;
 - (iii) hydrodewaxing the liquid product with a dewaxing catalyst which is ZSM-48 under catalytically effective hydrodewaxing conditions wherein the dewaxing catalyst contains at least one Group 9 or 10 noble metal;
 - (iv) Optionally, hydrofinishing the product from step (3) with MCM-41 under hydrofinishing conditions; and
 - b) at least one additive.
5. The functional fluid as in claim 2, 3 or 4 wherein said feedstock is a synthetic gas to liquid feedstock.
- 25 6. The functional fluid as in claims 2, 3 or 4 wherein said feedstock is made by a Fischer-Tropsch process.

7. The functional fluid having improved Brookfield viscosity at -20F or lower comprising the base stock or base oil of claims 1, 2, 3 or 4 and at least one performance enhancing additive.

5 8. The functional fluid having improved Brookfield viscosity at -20F or lower comprising the base stock or base oil of claims 1, 2, 3 or 4 and at least one performance enhancing additive, where said performance enhancing additive is not a viscosity index improver.

10 9. A functional fluid composition comprising the base oil or base stock of any one of the claims 1, 2, 3 or 4, wherein the Brookfield viscosity is less than or equal to about 40000 cP at -20F.

15 10. A functional fluid composition comprising the base oil or base stock of any one of the claims 1, 2, 3 or 4, wherein the Brookfield viscosity is less than or equal to about 28000 cP at -20F.

20 11. A functional fluid composition comprising the base oil or base stock of any one of the claims 1, 2, 3 or 4, wherein the Brookfield viscosity is less than or equal to about 6500 cP at -20F.

12. A functional fluid composition comprising the base oil or base stock of any one of the claims 1, 2, 3 or 4, wherein the Brookfield viscosity is less than or equal to about 6200 cP at -20F

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13. The method of making a functional fluid having improved Brookfield viscosity at -20F or lower comprising incorporating a base stock or base oil having the properties of

(a) a viscosity index (VI) of 130 or greater,

(b) a pour point of -10C or lower,
(c) a ratio of measured-to-theoretical low-temperature viscosity equal to 1.2 or less, at a temperature of -30C or lower, where the measured viscosity is cold-crank simulator viscosity and where theoretical viscosity is calculated at the same temperature using the Walther-MacCoull equation.

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wherein said base stock or base oil is not a Group IV base stock or base oil.

10 14. A method of improving the Brookfield viscosity of a base stock comprising incorporating said base stock or base oil of any one of the claims 1, 2, 3 or 4.

15 15. A method of improving the Brookfield viscosity of a functional fluid comprising incorporating a base stock or base oil of any one of the claims 1, 2, 3 or 4.

20 16. A method of improving the Brookfield viscosity of a hydraulic oil comprising incorporating a base stock or base oil of any one of the claims 1, 2, 3 or 4.

25 17. A method of improving a functional fluid by admixing the base oil or base stock of any one of the claims 1, 2, 3 or 4, wherein the Brookfield viscosity of the final mixture is less than or equal to about 40000 cP at -20F.

18. A method of improving a functional fluid by admixing the base oil or base stock of any one of the claims 1, 2, 3 or 4, wherein the Brookfield viscosity of the final mixture is less than or equal to about 28000 cP at -20F.

19. A method of improving a functional fluid by admixing the base oil or base stock of any one of the claims 1, 2, 3 or 4, wherein the Brookfield viscosity of the final mixture is less than or equal to about 6500 cP at -20F.
- 5 20. A method of improving a functional fluid by admixing the base oil or base stock of any one of the claims 1, 2, 3 or 4, wherein the Brookfield viscosity of the final mixture is less than or equal to about 6200 cP at -20F
- 10 21. Any one of the proceeding claims wherein the functional fluid is a hydraulic oil.